



EBM: TRUE CONFESSIONS and LESSONS LEARNED

**ED GRUMBINE
19-20 JUNE, 2018
EDMONTON, ALBERTA**



Skillen (2015): EBM has an E PART

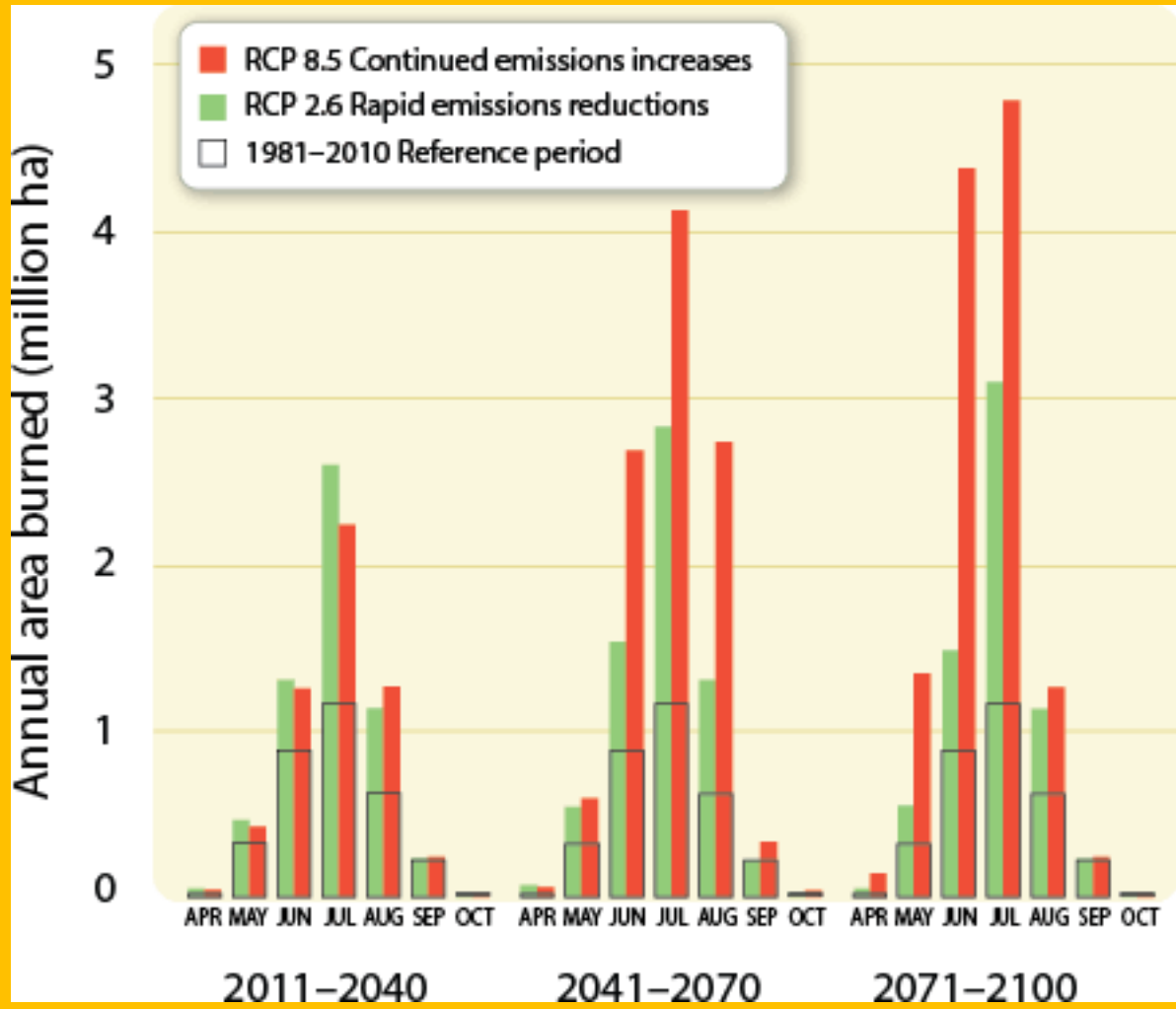


**Skillen (2015): EBM has an
E PART**

M PART









HOW DO YOU BUILD A BETTER CUTBLOCK FOR CARIBOU?



WOODLAND CARIBOU PREFER MATURE FORESTS



YOUNG FORESTS = MORE MOOSE, ELK, AND DEER

HUMANS SHIFT THE LANDSCAPE TO YOUNG FOREST



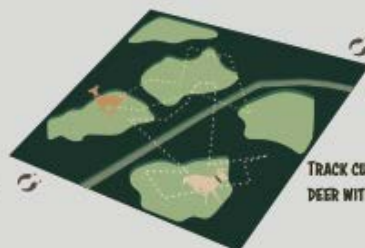
MORE PREDATORS MOVE IN



GOAL: DESIGN CUTBLOCKS WITHIN CARIBOU RANGES THAT ARE LESS SUITABLE FOR MOOSE, ELK, AND DEER



MONITOR CUTBLOCK USE BY DEER, MOOSE, AND ELK WITH TRAIL CAMERAS



TRACK CUTBLOCK USE BY COLLARED DEER WITHIN CARIBOU RANGES



RELATE CUTBLOCK USE BY DEER TO DIFFERENT SILVICULTURAL PRACTICES



RESULTS OF THIS STUDY WILL BE USED TO:

- IDENTIFY SITES FOR CARIBOU HABITAT RESTORATION
- GUIDE FORESTRY PLANNING DECISIONS



FRI Research





**EBM is
Collaborative
Landscape-scale planning
and implementation
that is flexible and adaptive.**

Layzer 2008



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ADAPTIVE— MODIFY YOUR BEHAVIOR TO ADJUST TO CHANGE











A scenic mountain landscape featuring a large glacier on the left, green slopes on the right, and a colorful prayer flag umbrella in the foreground. The text "PROGRESS!!!" is overlaid in yellow.

PROGRESS!!!

EBM THEMES

Big picture thinking

Ecological boundaries

Ecological integrity

Data collection

Monitoring

Cooperation

People part of nature

Adaptive management

Organizational change

Human values

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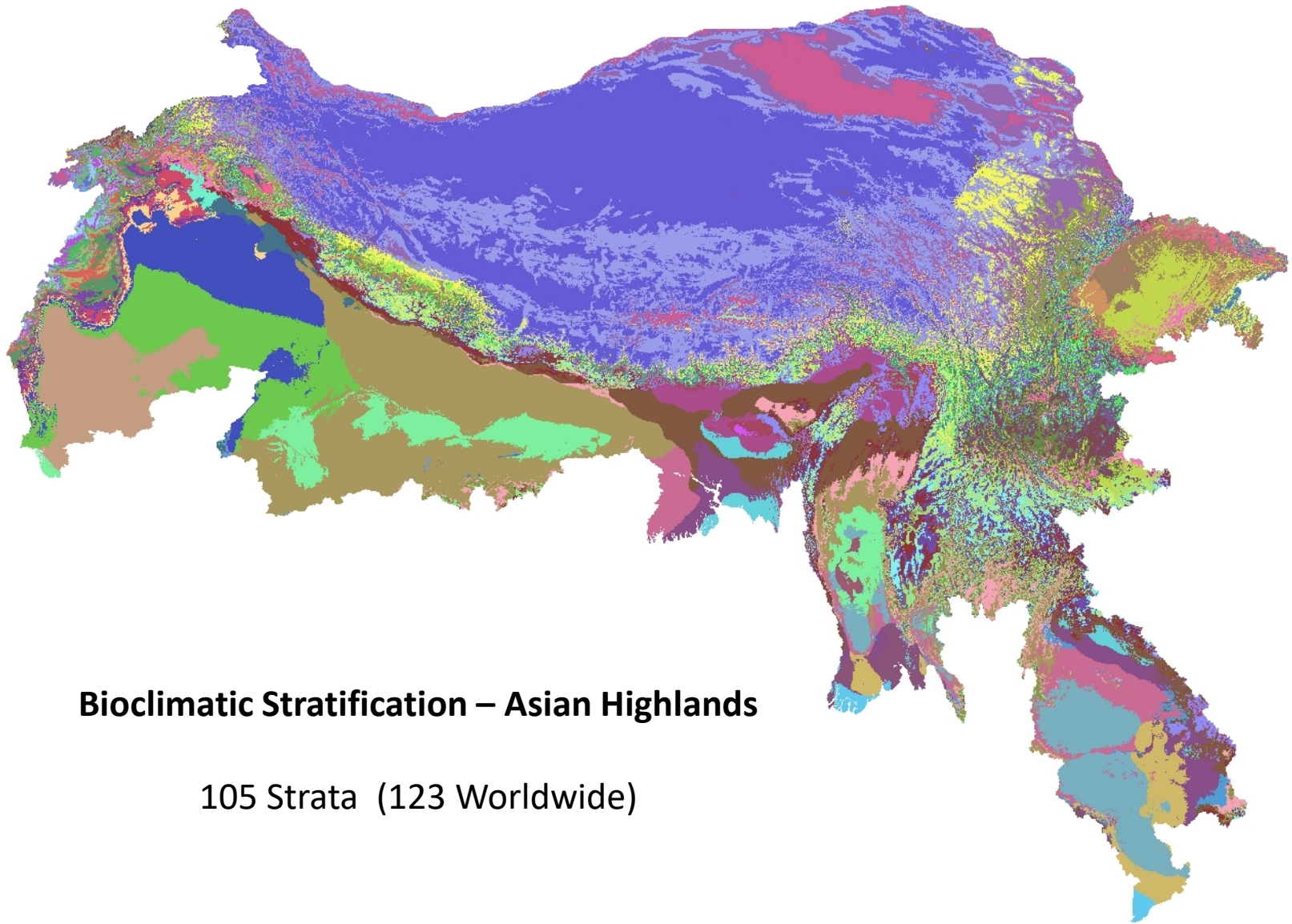
People part of nature

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Human values





Bioclimatic Stratification – Asian Highlands

105 Strata (123 Worldwide)

**Foolish people
elaborate
on their
mistakes**



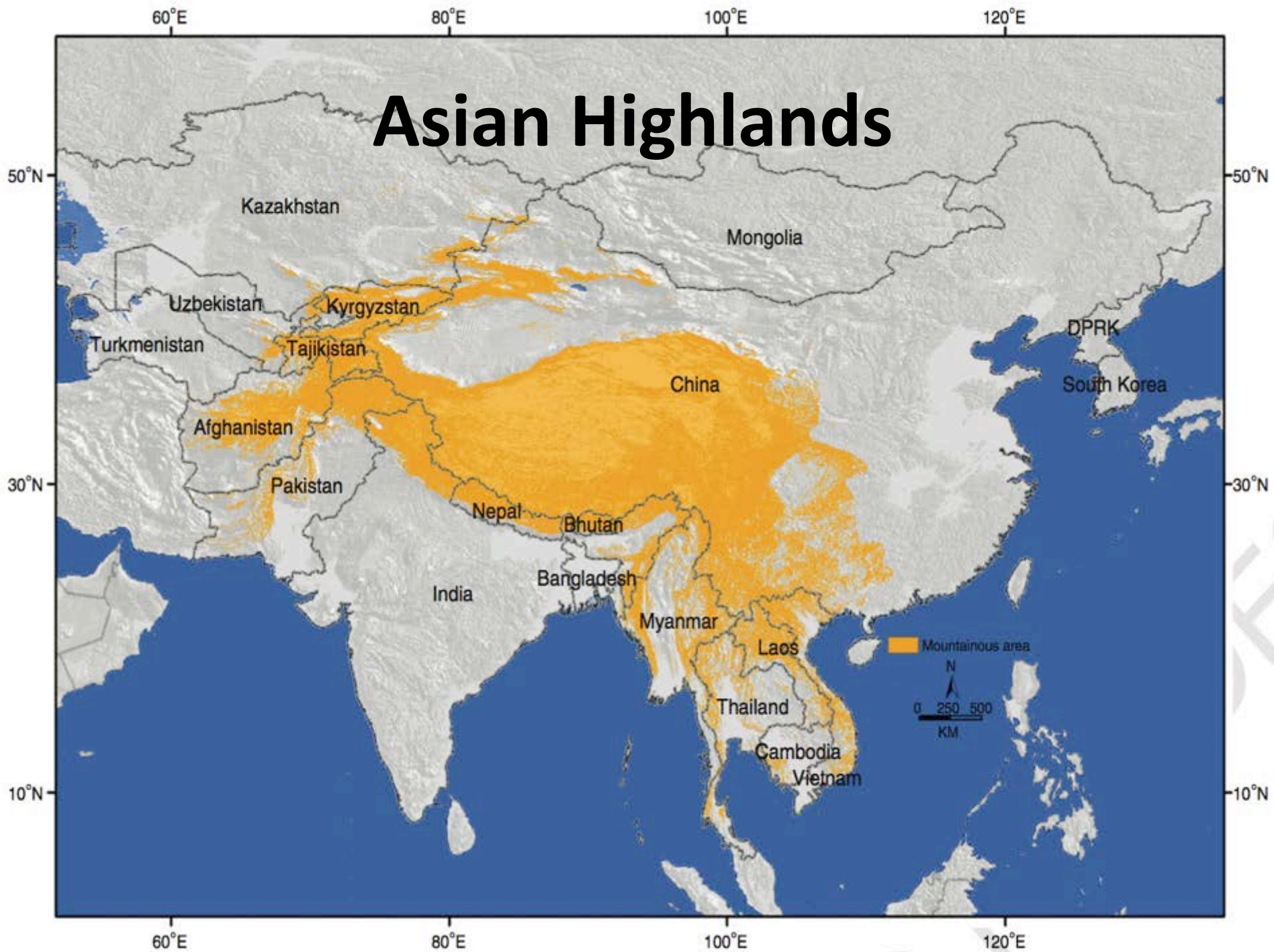


**Are we
perpetually
foolish or merely
slow learners?**

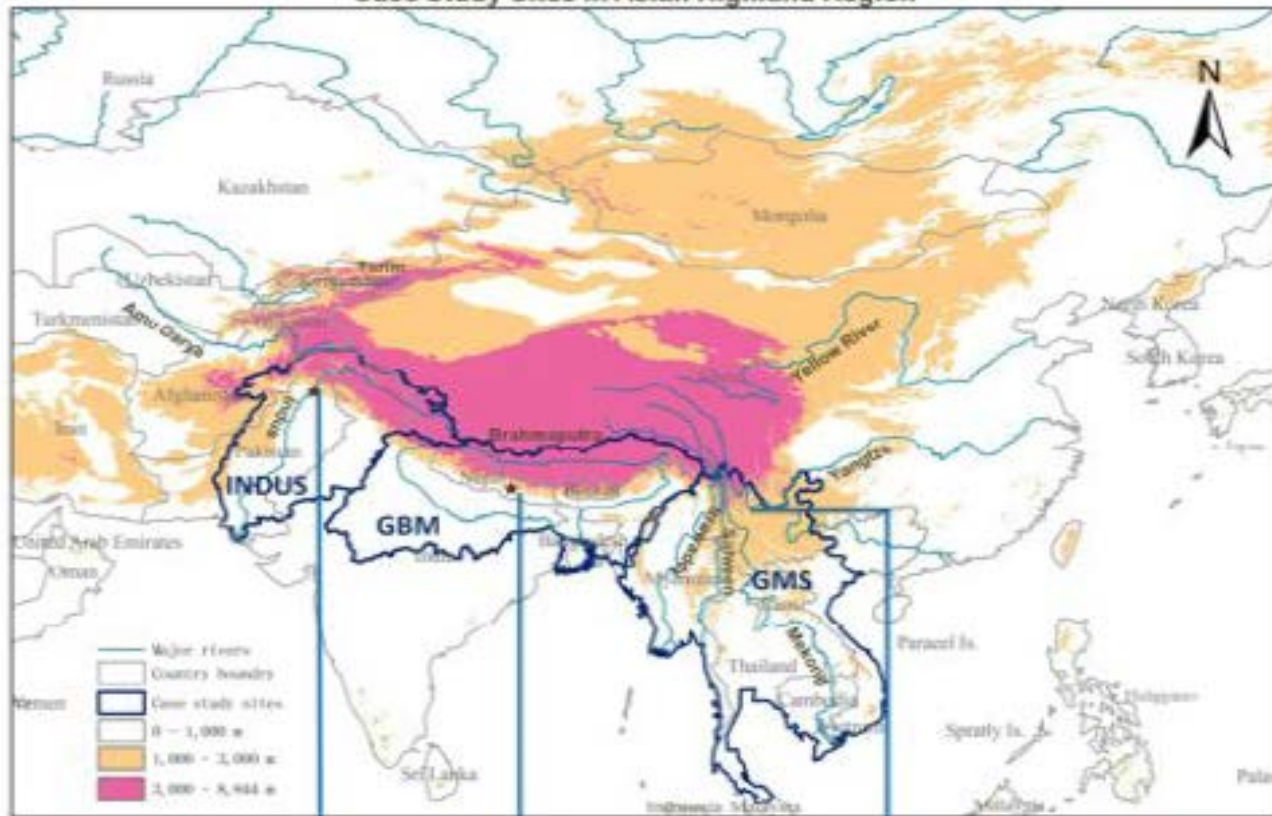


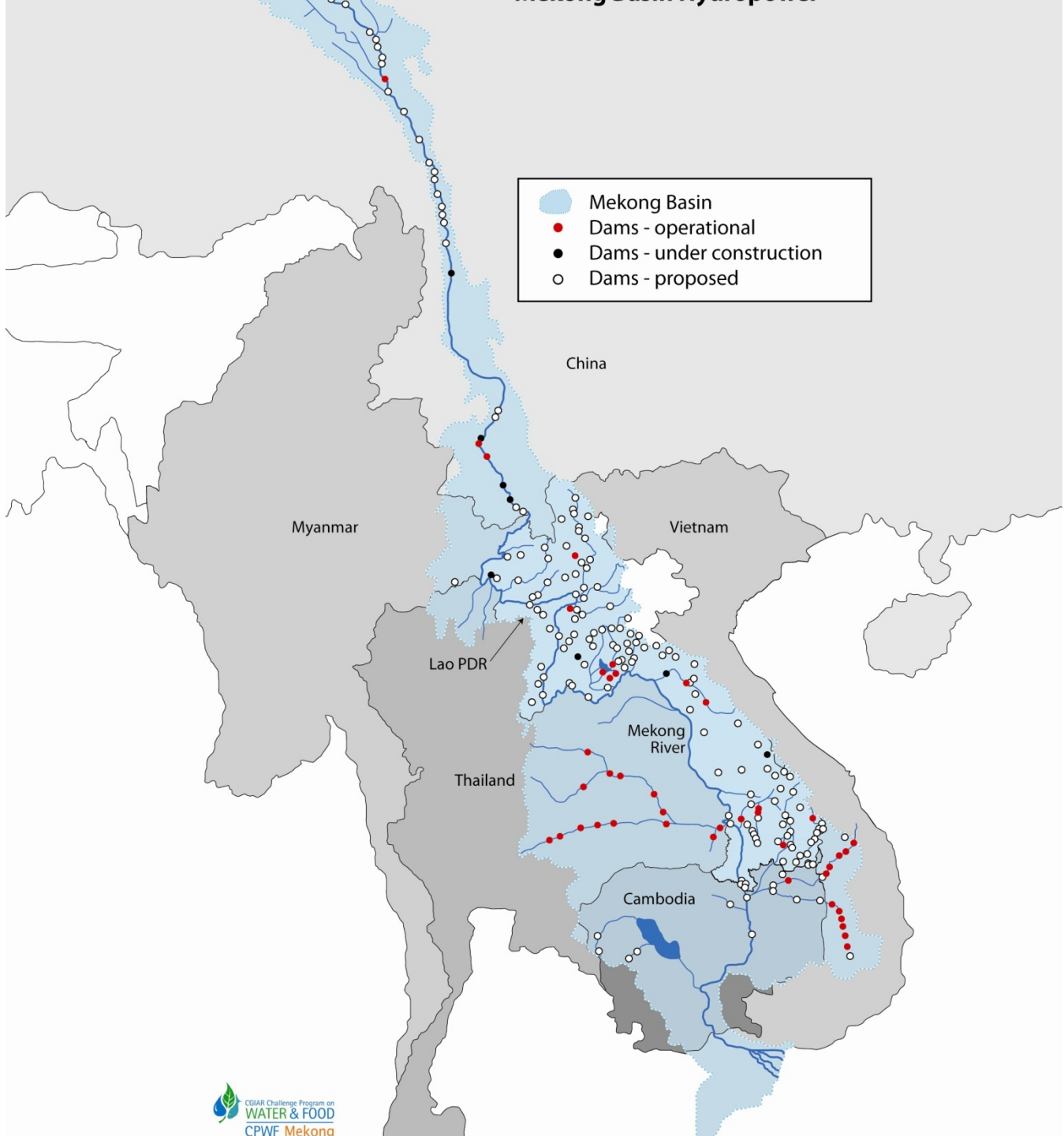
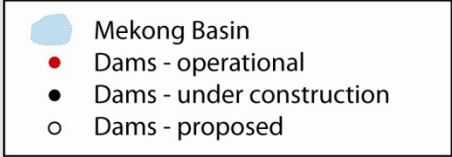


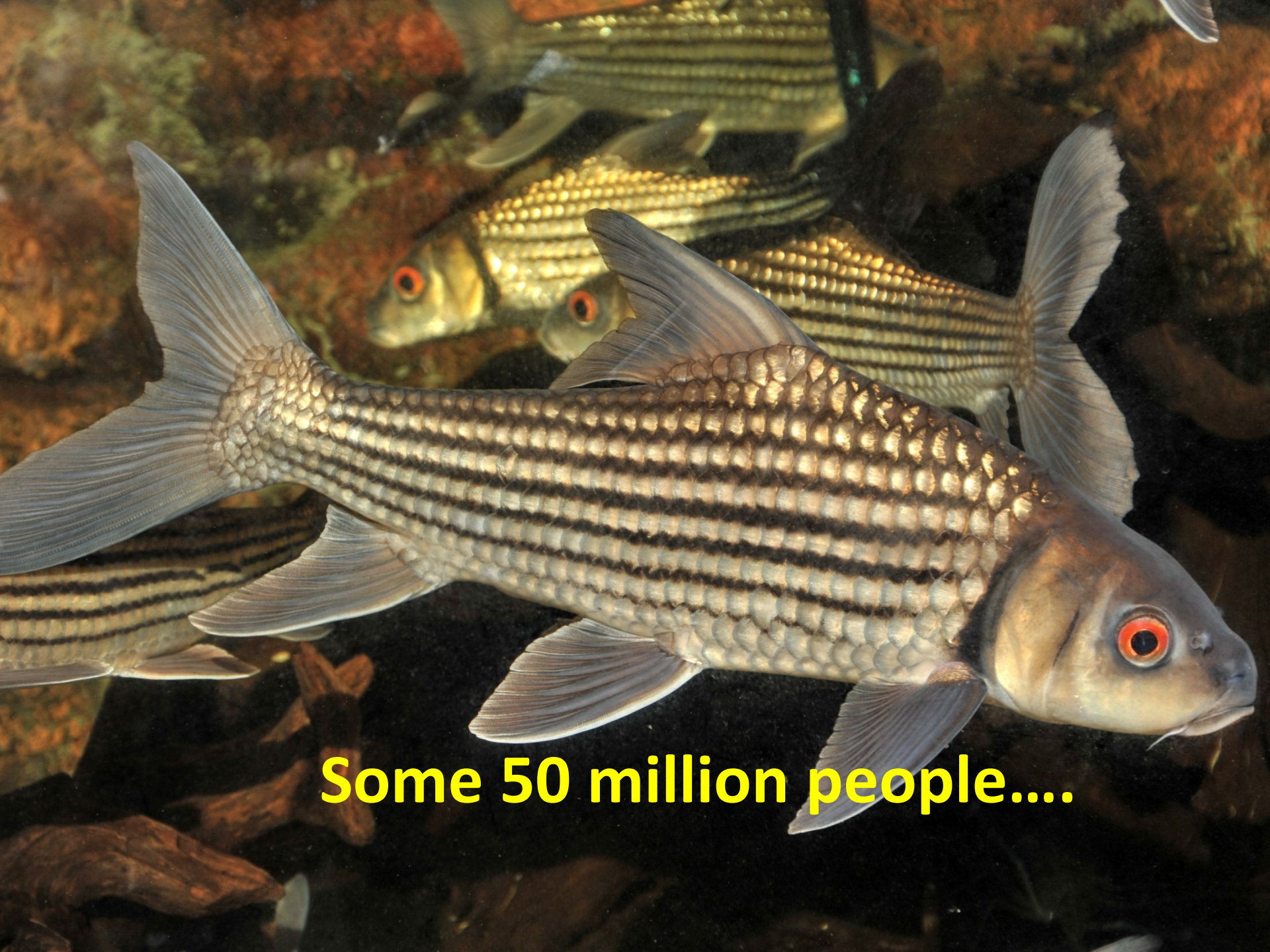
Asian Highlands



Case Study Sites in Asian Highland Region



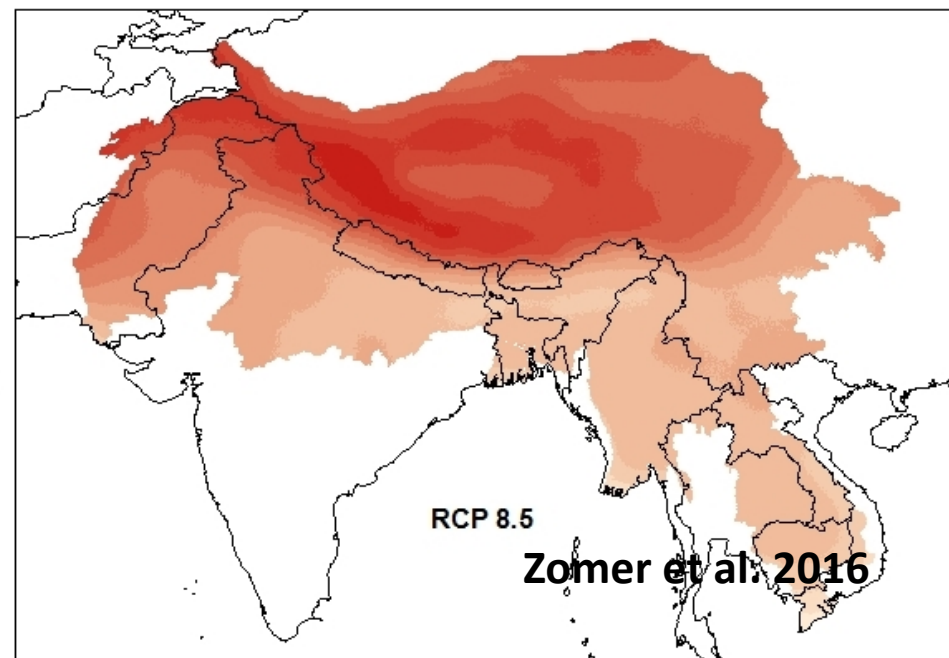
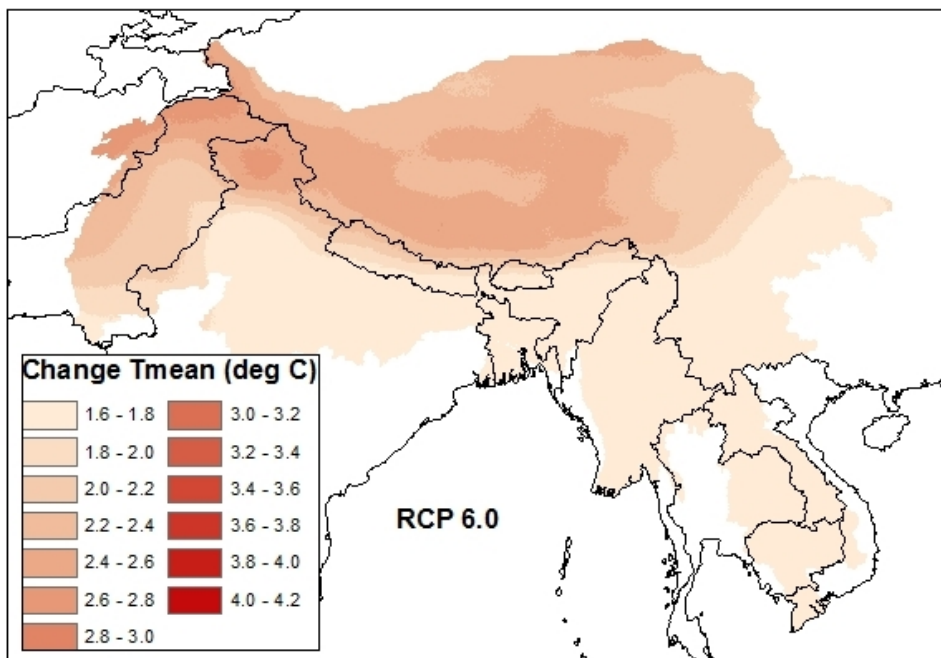




Some 50 million people....

Predicted Change in Mean Annual Temperature 2000 - 2050

Average 2.5 to 3.1° C by 2050













IDENTIFY entry points for locally rooted
water management participation

A lush green agricultural landscape with terraced fields and a person working in the foreground. The scene is dominated by vibrant green rice paddies and rows of young trees. A person in a red shirt is visible in the lower center, working in a field. The overall atmosphere is one of active farming and environmental care.

CHITRAL entry points:

Disaster Risk Reduction

Maintaining irrigation systems

WUMPs

Better ag. extension services for women



MELAMCHI entry points:

VDC -level

Water Use Master Planning with villagers

Climate education in schools



LIJIANG
ENTRY POINT:
ASK villagers
about household
vulnerability



BARRIERS?



ALL ASIAN SITES

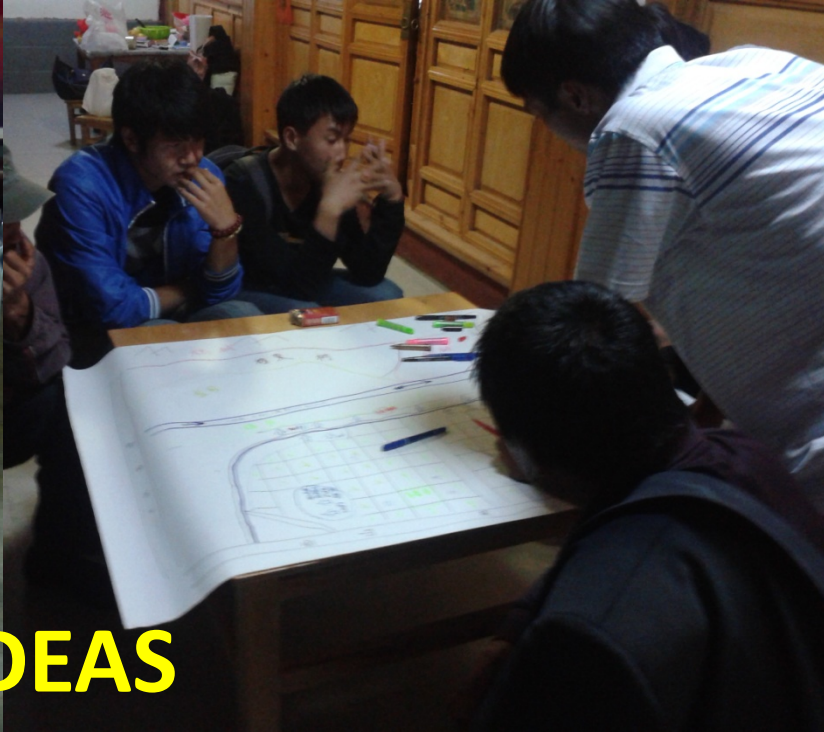
- Lack of access to information
- Little accountability from government
- Low levels of participation ----

LOCAL INFLUENCE on decisions

**HOW to do BETTER WATER
GOVERNANCE without
BETTER GOVERNMENT?**



People not passive
but **ACTIVE** learners



EXCHANGE IDEAS



**PROPOSE SOLUTIONS
BUILD AGREEMENTS
MANAGE CONFLICTS**

SPECIFIC ACTIONS THAT HELP

REGIONAL ENV. ASSESSMENTS (review options)

MULTIPLE STAKEHOLDERS (trust/cooperation)

LOCAL INPUT (civic discussion)

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BRING INTO NORMAL

PRACTICE

A high-angle, black and white photograph of a massive, snow-covered mountain peak, likely Mount Everest. The mountain's surface is rugged and textured with snow and ice. The sky is dark and overcast. The foreground shows dark, rocky terrain. The text "WHERE IS EBM?" is overlaid in bright yellow, bold, sans-serif font on the right side of the mountain.

WHERE IS EBM?

The Colorado Plateau

-  National Parks (NP)
-  National Monuments (NM)
-  National Recreation Areas (NRA)
-  National Forest
-  Tribal Lands



GRAND CANYON TRUST

Map by Stephanie Smith, GCT

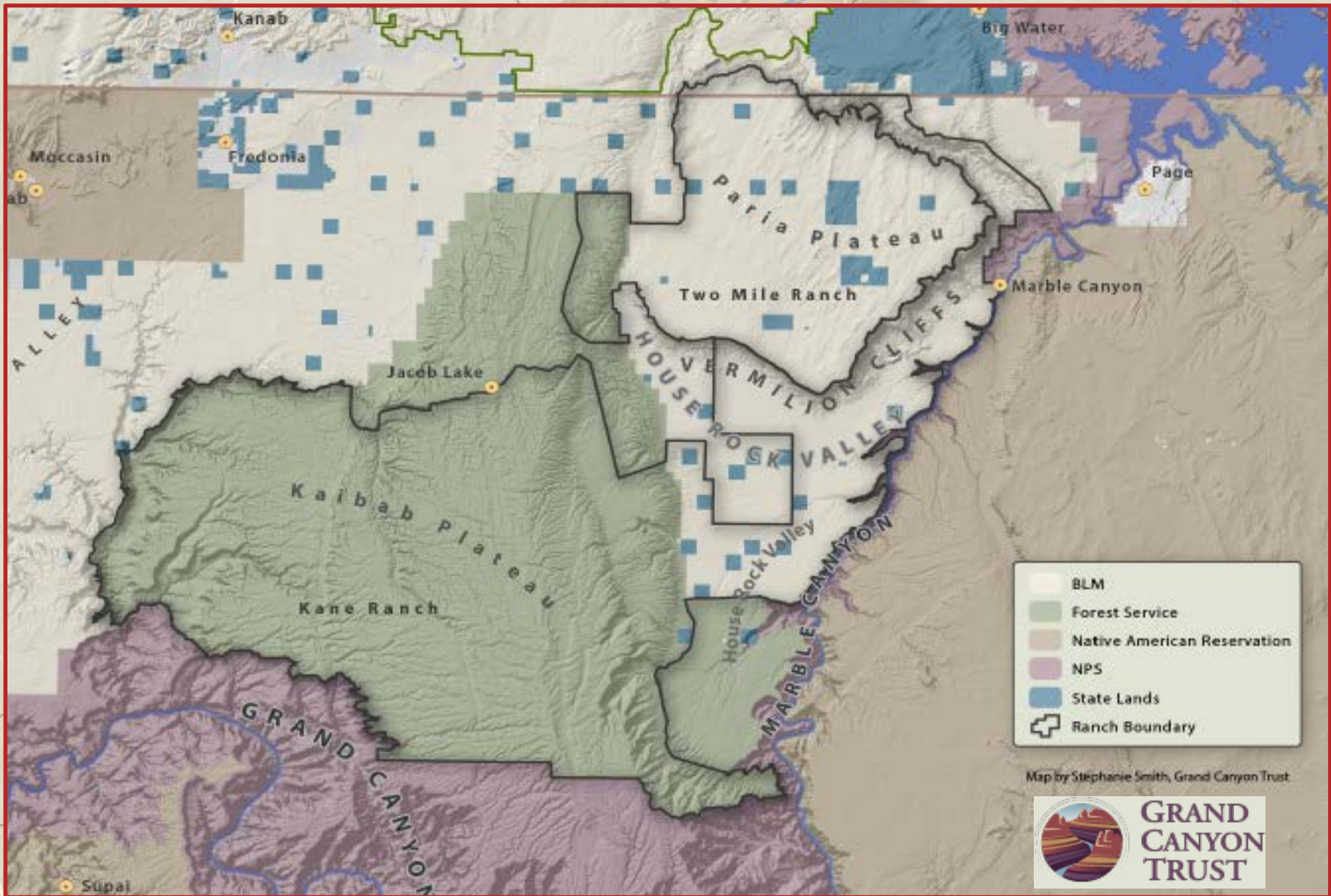
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GRAND CANYON TRUST

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A rustic wooden sign stands in a lush green field. The sign is made of two vertical wooden posts and a horizontal crossbar, all constructed from natural, weathered wood. A dark brown rectangular sign is mounted on the crossbar, featuring the words "KANE" and "RANCH" in large, white, serif capital letters. Above the sign, a red, corrugated metal roof is supported by the top of the wooden posts. The background is a vast, open landscape of tall green grass and scattered shrubs, with a rocky hillside visible in the distance under a clear sky.

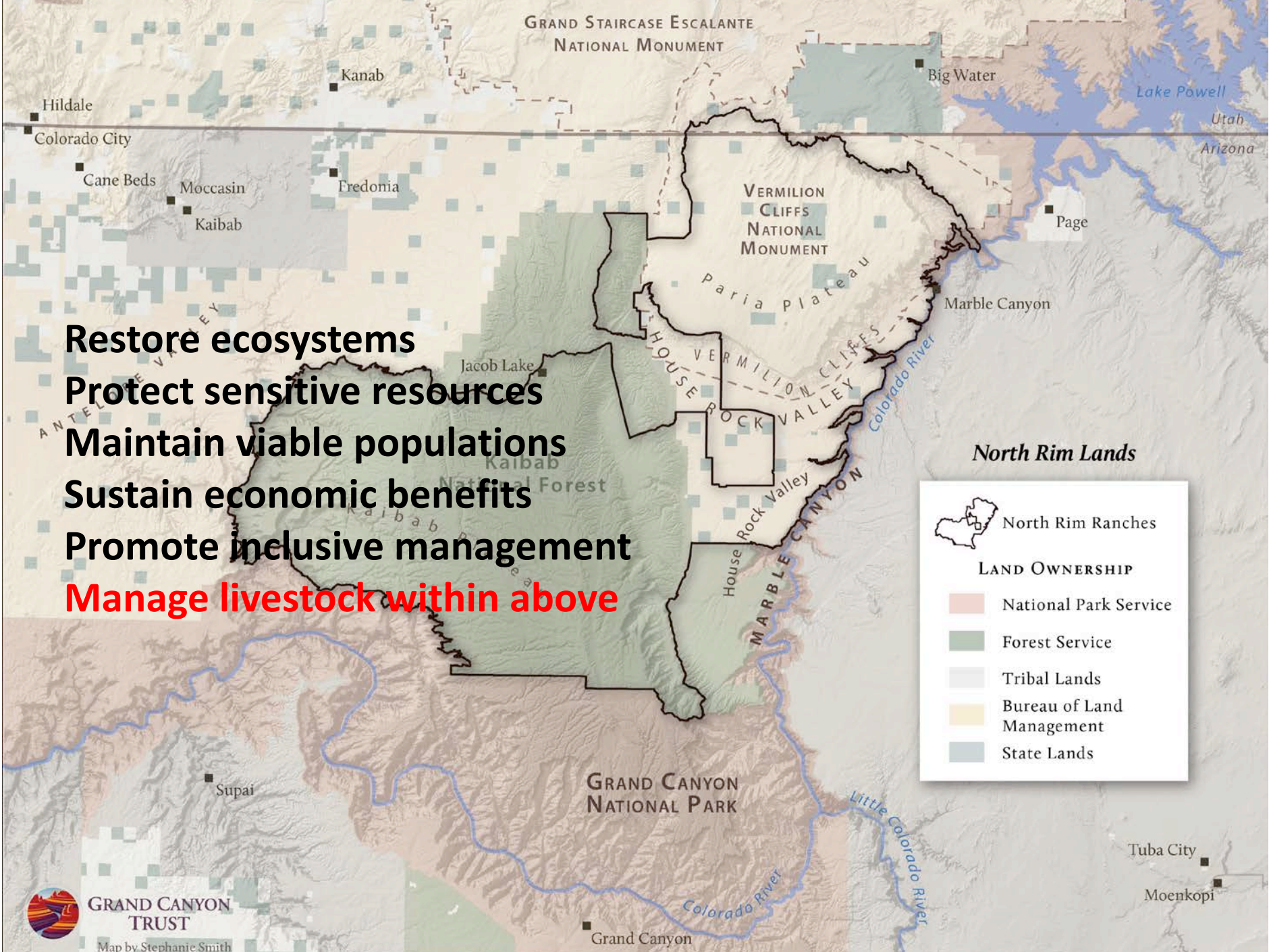
KANE
RANCH







Restore ecosystems
Protect sensitive resources
Maintain viable populations
Sustain economic benefits
Promote inclusive management
Manage livestock within above



GRAND CANYON TRUST

Map by Stephanie Smith

Western United States
*Mid-century Projected Temperature
Change in Degrees Celsius*

Change in °C
2041-2070
(RCP 8.5)



High : 3.0

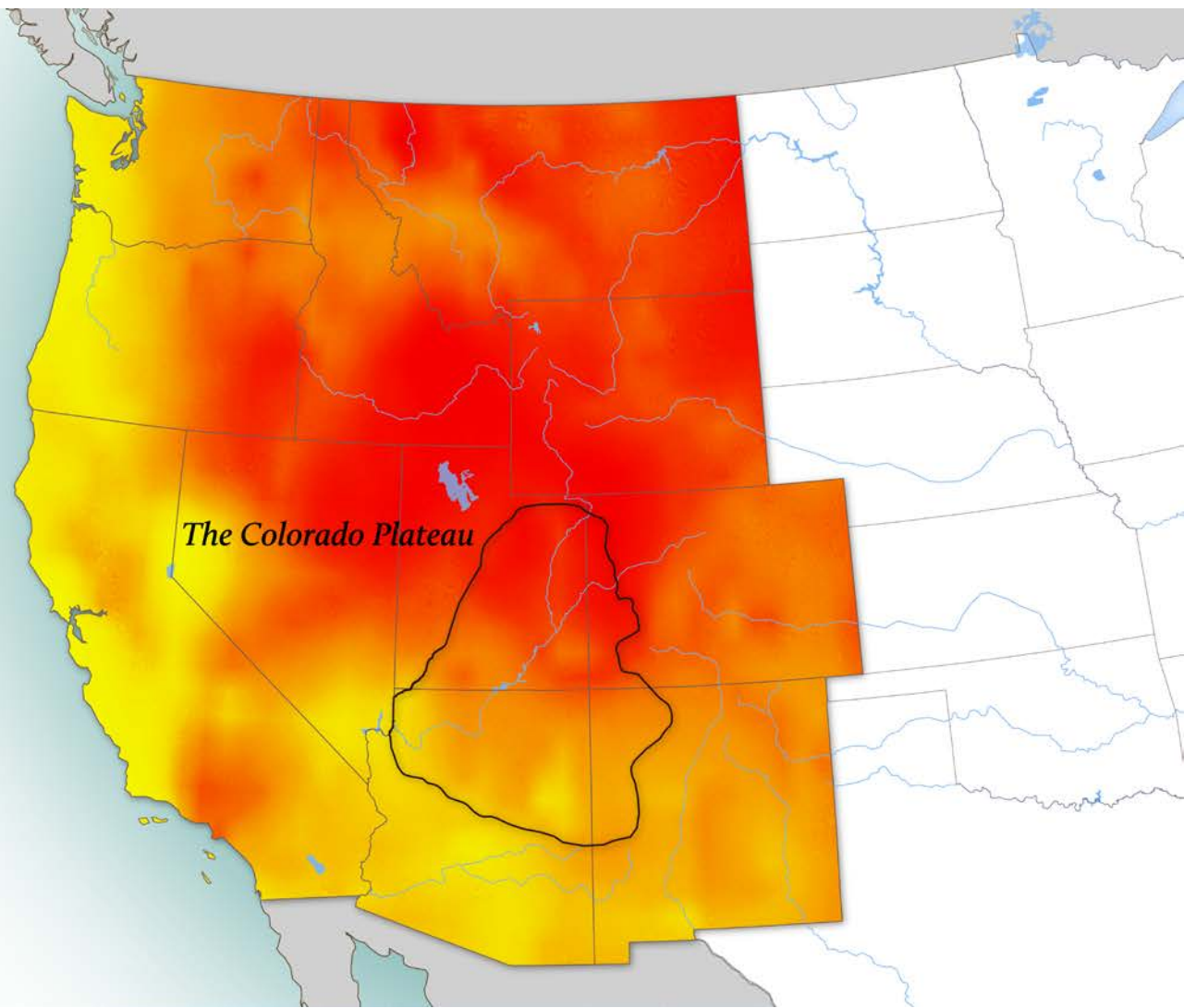
Mean : 2.2

Low : 1.1

The Colorado Plateau



Analysis by Cerissa Hoglandar
Cartography by Stephanie Smith, Grand Canyon Trust



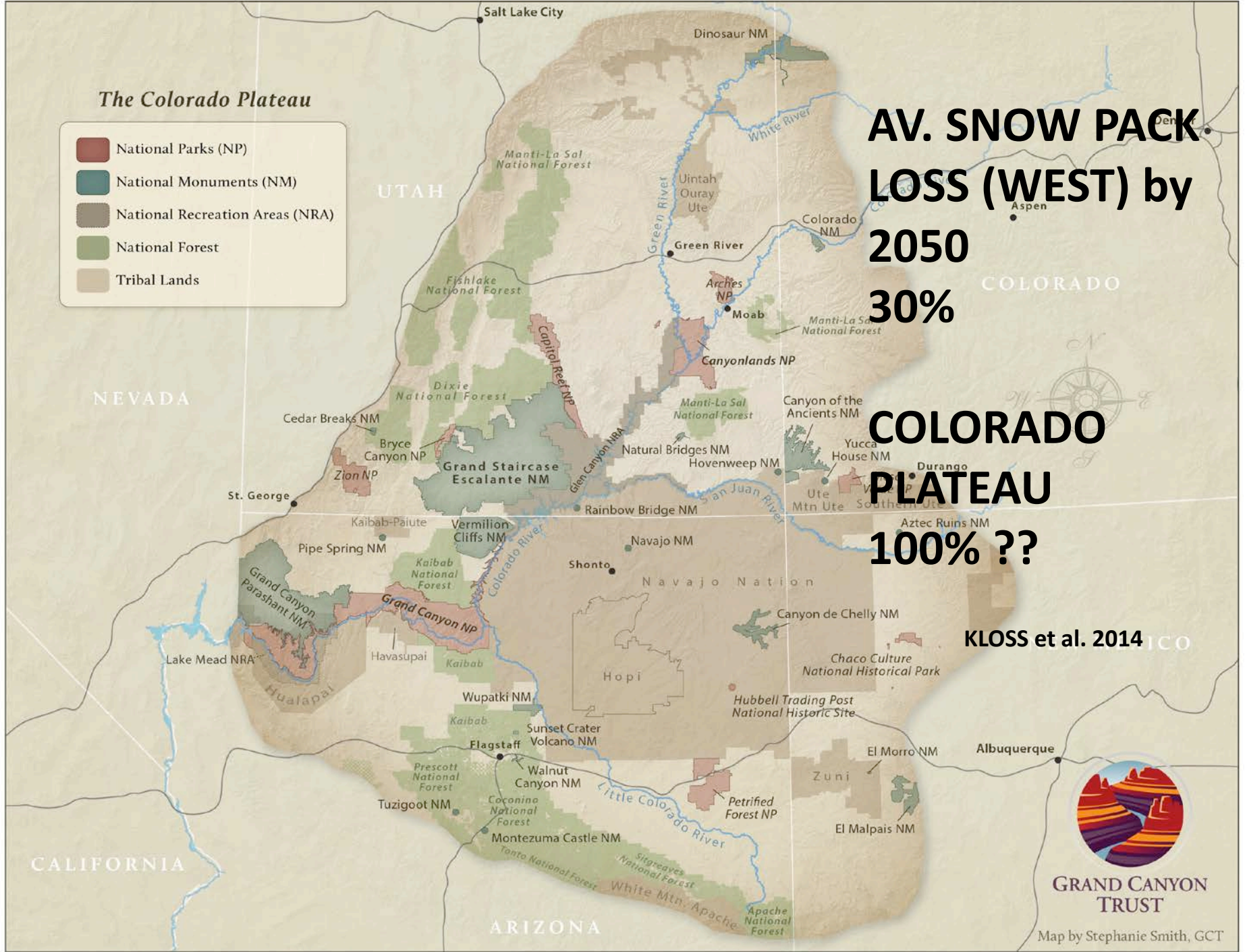
The Colorado Plateau

- National Parks (NP)
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**AV. SNOW PACK
LOSS (WEST) by
2050
30%**

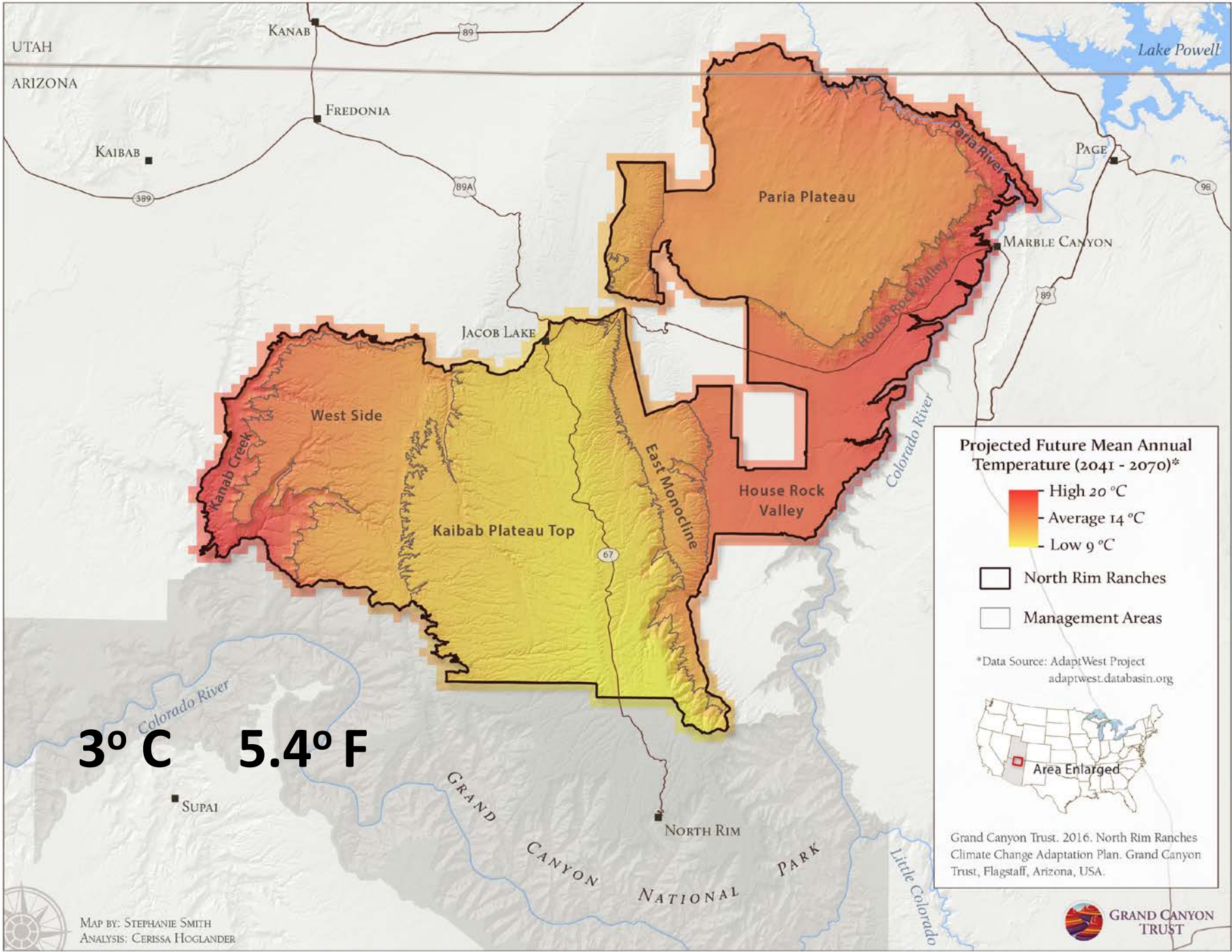
**COLORADO
PLATEAU
100% ??**

KLOSS et al. 2014



**GRAND CANYON
TRUST**

Map by Stephanie Smith, GCT



3° C **5.4° F**

Projected Future Mean Annual Temperature (2041 - 2070)*

- High 20 °C
- Average 14 °C
- Low 9 °C

North Rim Ranches
 Management Areas

*Data Source: AdaptWest Project
adaptwest.databasin.org

Area Enlarged

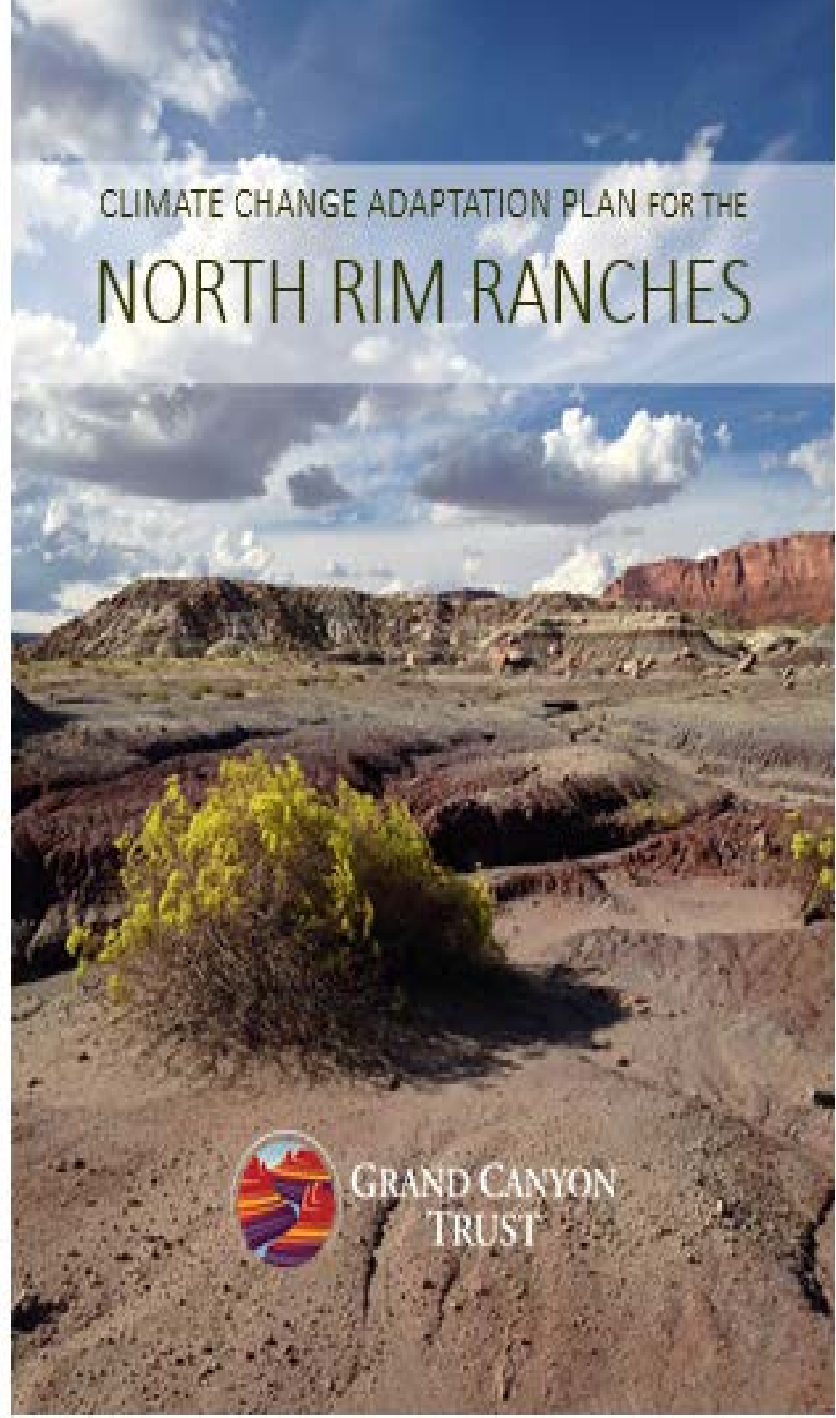
Grand Canyon Trust. 2016. North Rim Ranches Climate Change Adaptation Plan. Grand Canyon Trust, Flagstaff, Arizona, USA.

NRR Research & Stewardship Partnership



**GCT FS BLM USGS NPS Jones family AZGFD
NAU and more**

CLIMATE CHANGE ADAPTATION PLAN FOR THE
NORTH RIM RANCHES



GRAND CANYON
TRUST

Adaptation Planning

**Projected climate
changes**

Landscape vulnerability

Key resources

Adaptation actions



Example: Restoring Springs

BEFORE



AFTER



AFTER











HCO ScoutGuard

11.15.2014 8:09:49

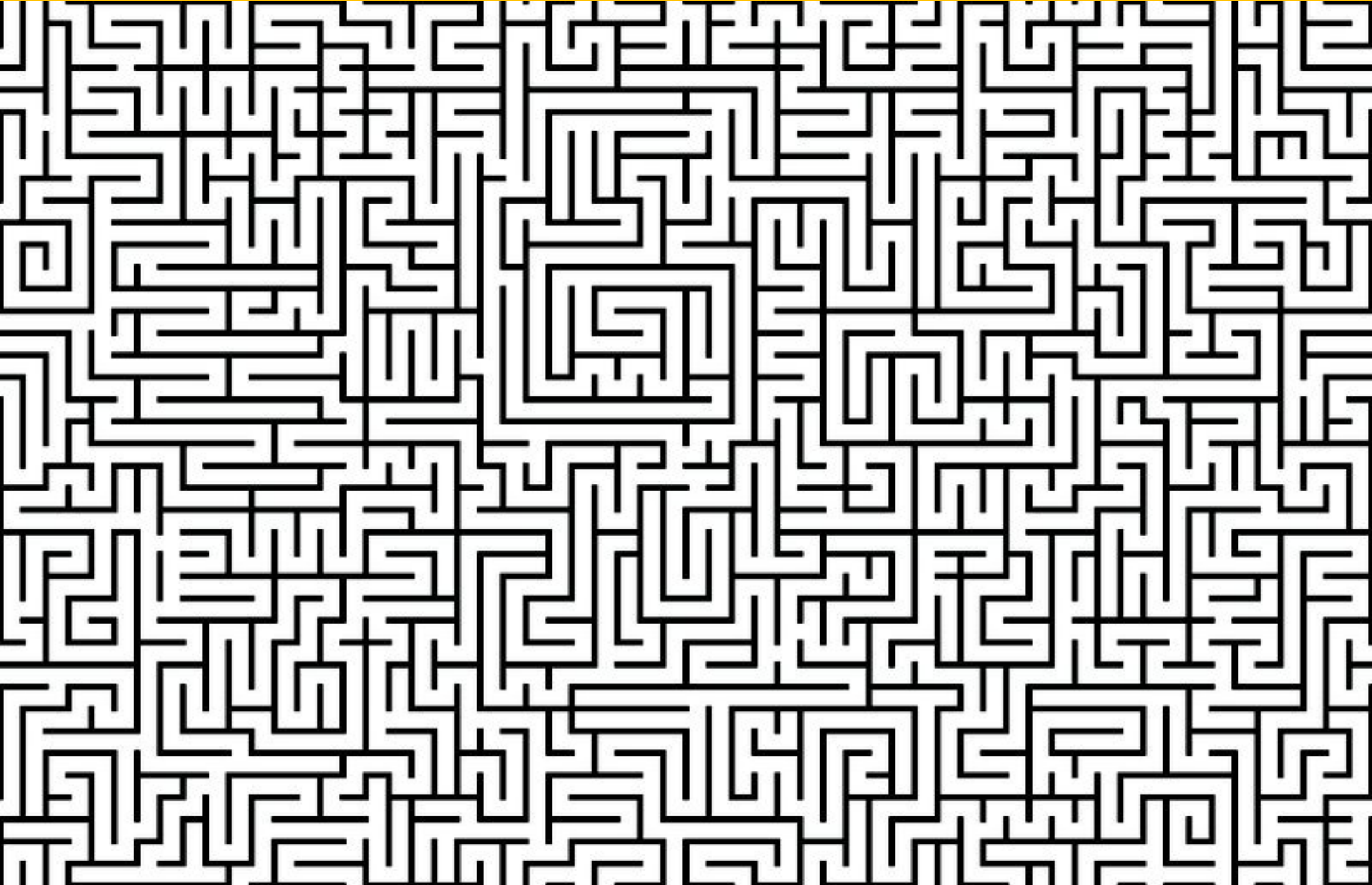






WHERE IS EBM?

CLEAR PATH TO SUCCESS!!





PARTNERSHIPS







A photograph of a pond with several lily pads. The water is dark and reflects the sky. The lily pads are mostly green with some brown spots, indicating decay or damage. One lily pad in the center has a small pink flower bud. The text "CONFLICT MANAGEMENT" is overlaid in yellow on the right side of the image.

CONFLICT MANAGEMENT



STRATEGIC COMMUNICATIONS

So much SCIENCE.....

But VALUES shape PERCEPTION/ACTION

COMMUNICATE & CONNECT

ART

FILM/VIDEO

TELL the STORIES





HOW DO YOU BUILD A BETTER CUTBLOCK FOR CARIBOU?



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YOUNG FORESTS = MORE MOOSE, ELK, AND DEER

HUMANS SHIFT THE LANDSCAPE TO YOUNG FOREST



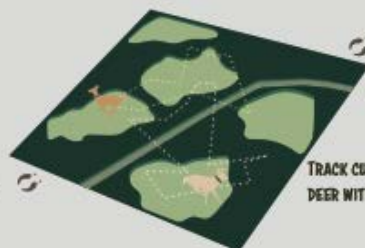
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FRI Research





SOCIAL NETWORKS





MEKONG

ENVIRONMENTAL

SYMPOSIUM

MEKONG ENVIRONMENTAL SYMPOSIUM -2013 - MEKONG ENVIRONMENTAL SYMPOSIUM -2013 - MEKONG ENVIRONMENTAL SYMPOSIUM -2013 - MEKONG

**NOT MORE
KNOWLEDGE....
MORE EFFECTIVE
KNOWLEDGE**









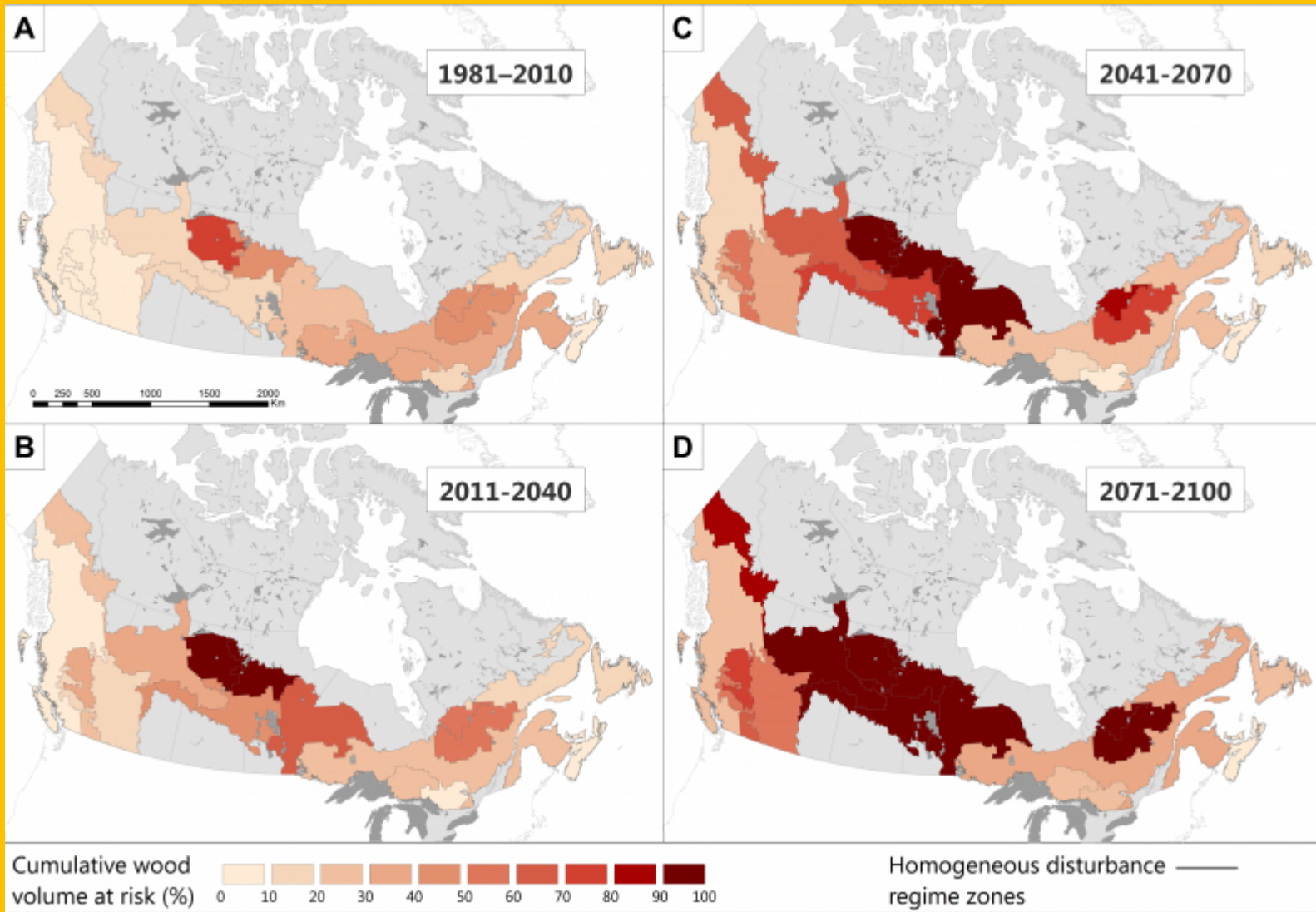
An aerial photograph of a rural valley. The left side shows terraced agricultural fields on a hillside, with several small houses scattered across the slope. A dirt road winds through the center of the valley. On the right, a rocky river flows through a more densely forested area. In the foreground, there are several buildings with bright blue roofs. The overall scene suggests a rural, possibly mountainous, region.

**HOW MUCH ADAPTATION
WILL BE NEEDED ??**

An aerial photograph of a rural valley. The landscape is characterized by terraced agricultural fields on the left, a winding dirt road in the center, and a rocky riverbed on the right. Several small buildings with blue roofs are scattered throughout the valley. The overall scene suggests a rural, possibly mountainous, region.

**HOW MUCH ADAPTATION
WILL BE NEEDED ??**

A LOT





THANK YOU!